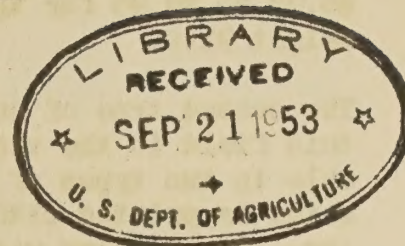


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SMOOTH SURFACE FLOOR AND WALL COVERING\*

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Ten years ago this would have been a somewhat different story, for then there were 15 to 20 major manufacturers in the floor coverings and wall covering industry of smooth surface or hard type who were manufacturing at that time five basic types of product. Today there are upward of 80 manufacturers who are manufacturing nine basic types of floor covering for the same purposes. Let us consider two basic types of hard, smooth surface floor covering: first, those which are dry laid and, secondly, those which are adhesively applied.

In the dry-lay group there are two types available: first, and most important, the enamel surface felt base which is probably the largest single type in sales volume and is a result of the famous Congoleum product, which is a trade-mark for a manufacturer's product in this field and which has become so generic for the product that it may be found in dictionaries as a word which means enamel surface felt base floor covering. This type of floor covering is available in three weights, the most popular the heavy weight. Other manufacturers are making standard weight and there are even a few who offer a lighter weight. The backing felt varies in thickness and character and the amount of enamel deposited on the surface during the printing operation varies among the three weights.

Enamel surface floor covering is available to the consumer in two modular forms, the first of which is yard goods, produced in three widths, 6', 9' and 12', in a range of designs and patterns suitable for all rooms of the house. The approximate prices to the consumer are 89¢ per yard for the standard weight and 59¢ per yard for the light weight.

In discussing prices, they will all be given on the basis of material only, and will not include in any instance cost of installation by professional mechanics. Installation charges vary tremendously and since this meeting includes representatives from 41 States and Alaska, it would be quite difficult to cover labor costs to the consumer; hence, prices will be approximate, for materials only.

The second modular form in which enamel surface floor covering is provided to the consumer is the rug, room size, ranging from 6'x9' to 12'x15'. In popular sizes, one which sells in the greatest volume is the 9'x12'. Here

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again patterns are included which are suitable for all rooms of the house and are priced in the heavy weight from \$10.95 to \$11.95 each for the 9x12 - \$8.95 to \$9.95 for the standard weight 9x12 - \$6.95 to \$7.95 for the light weight 9x12.

The second type of dry-lay floor covering which has in recent years entered this field is the vinyl printed product made in yard goods only and available in two types of print - that which is printed with vinyl inks and that which is printed with oleo inks and then protected with a thin vinyl coating. Two popular widths, 6' and 9' are available to the consumer in a limited pattern range. Vinyl printed yard goods carries the same type of felt backing provided on enamel surface yard goods and reaches the consumer at prices of \$1.49 to \$1.69 per square yard in either width.

What does the consumer look for in the dry-lay type of product? First, design, which would be determined by the room in which the flooring is to be used; and, second, color - determined by the color selected by the individual as a complement to or a basis for a coloring combination of a specific room. Then, of course, resistance to wear, which determines how long the floor will last. And then - if for kitchens - resistance to alkalies, kitchen acids and oils - even in some areas kerosene oil - where kerosene is still used as a fuel for heating purposes. The consumer also seeks a product with smoothness of surface because smoothness of surface increases the life, and consumers also look for gloss in this product.

Now let us look at the second group of floor covering, the adhesively applied, which may again be broken into two basic types: (a) the sheeted compositions on backing and (b) sheeted compositions which are unbacked. In the first group we find linoleum and vinyl, both of which are available in yard goods, in this case two yards wide in linoleum and two and one yard, 6' and 3' wide, in vinyl - and in tile units which are mainly a modular size 9"x9". In the unbacked composition you will find, likewise, linoleum and vinyl, and also rubber, vinyl asbestos, asphalt and cork.

In linoleum there are several gauges produced. First of all and least popular is the light weight which carries a wear layer of composition of .030" mounted on a backing of saturated felt or a special patented type of felt known as Duplex. The most popular and second thickness is the standard weight where the wear layer is .050" and the backing is of the same type. The third popular weight in linoleum composition is 1/8", mounted on a burlap back. Here the wear layer goes completely through from the face to the back.

The light and standard gauges are popularly used for household requirements, whereas the 1/8" on the burlap back is the proper gauge for commercial and institutional use. Patterns and colorings are not in any way limited to one gauge but the longest line of patterns available to the consumer will be found in the standard gauge because it is the thickness most popularly accepted for household requirements. The overall thickness of standard gauge is .090".



Pricing of the linoleum composition material in its two forms, yard goods 6' wide, and tile 9"x9" modular units, is approximately as follows, again material only: light weight yard goods, 20¢ to 25¢ per square foot; standard weight 30¢ to 35¢ per square foot; 1/8" 35¢ to 40¢ per square foot. In tile units the prices are approximately 10% higher, tile running in light weight from 22¢ to 27¢; standard weight 32¢ to 40¢; 1/8" approximately 50¢ per square foot.

The second in backed composition, which is a recent addition - one of those which have been added by manufacturers since the war - is a vinyl sheet applied to either a backing of saturated felt or a backing of a low-cost vinyl composition. In these sheeted vinyls the wear layer varies between manufacturers from .20" minimum to .050" maximum. This is probably due to the fact that no stabilization of wear layer has been effected because of the relative "youth" of this portion of the industry as compared to linoleum where standardization of gauge has been in effect over a period of years. Pricing of vinyl sheets, mounted on saturated felt and/or the lower cost vinyl sheeted backing, range in yard goods from 35¢ to 50¢ per square foot, depending upon the amount of wear layer provided, and in tile from 35¢ to 55¢ per square foot. Sheeted vinyl is available in both 6' and 3' widths, as well as a 9"x9" tile unit.

In the unbacked composition of the adhesively applied group, in addition to linoleum we find a clear vinyl tile where the composition of vinyl is a homogeneous mass and is available in 1/8" and 3/32" thicknesses, priced approximately to the consumer only in the 1/8" gauge from 80¢ to \$1.25 per square foot; in the 3/32" gauge 55¢ to 70¢ per square foot. Then there is the vinyl plastic asbestos group of products made by various manufacturers where the composition runs from the face to the back, made in two gauges as standards and a third as special requirements, at prices of 30¢ per square foot for 1/16", 60¢ for 1/8" and on 3/16" price available only on special requirements.

Then we come to rubber tile which is made in three recognized gauges, 3/32", 1/8" and 1/16" and is priced at approximately 4¢ per square foot for 3/32", 50¢ for 1/8" and 65¢ for 3/16".

Asphalt tile has somewhat different price structures than the other products which we have been discussing because prices vary with color. Asphalt tile is made available to the consumer in two gauges, 1/8" and 3/16" and in each gauge in four color groups: A-group in the mahogany and black plain; B-group where the mahogany and black backgrounds are decorated with overlay colors of white, yellow, orange, green, etc.; C-group which gets up to the high values of the various hues desirable for residential rooms and, finally, the D-group which includes white, yellow, blue and light tans. Prices in the 1/8" range from 10¢ per square foot to 20¢ per square foot, based on the color group and in the 3/16" gauge from 16¢ to 26¢ per square foot.

In connection with these prices on tile, it should be carefully noted that there is a practice within the industry at the dealer level to quote prices



on a per tile basis, rather than per square foot. In many cases the public is misled by such quotations because the popular unit of measurement is square foot, not a tile unit, and in buying they compare these per tile units which are naturally low, there being only  $9/16$  of a square foot in a 9"x9" tile - only to find out that if computed to the square foot area the price would be in many cases higher than the square foot price that some other dealer may have given them. Therefore, your friends should be cautioned to watch for this practice and to be sure that quotations are made on the basis of a square foot unit.

The final type of floor covering in this unbacked composition group is cork tile made available to the consumer in three gauges:  $1/8$ " at approximately 50¢ per square foot,  $3/16$ " 70¢ and  $1/4$ ", 90¢. There are still one or two manufacturers who are offering  $5/16$ " gauge but the quantity in the market is so small that it is unimportant in your planning to recognize it in your price comparisons. This completes the groups of products and price comparisons in the two forms in which they are available, yard goods and tile units.

So now let us look through the house of the consumer for the proper uses of the products by rooms. The first area, naturally, is the kitchen, for in the kitchen the smooth surface floor covering finds its greatest volume of use. In the kitchen linoleum is still the popular selection of the home owner. In recent investigations by leading publications in the shelter group, 85% of home owners selected linoleum as the desirable kitchen floor for their homes. Vinyl, of course, ranks high as a desirable floor for kitchens. Vinyl asbestos is satisfactory and in this connection it should be noted that vinyl asbestos is produced by manufacturers of asphalt tile and now affords them an opportunity of securing part of the kitchen market with a floor which is satisfactory. Asphalt tile should never be used in a kitchen. Ingredients which are used as the base of asphalt tile are soluble in animal and vegetable fats and therefore asphalt tile fails miserably in kitchens. Vinyl asbestos, on the other hand, is resistant to oil, alkalies and greases found in kitchens and, accordingly, is quite satisfactory. Rubber is not recommended, although one manufacturer recently advertised that they were now developing a rubber which was quite satisfactory for use in kitchens in spite of the oils, alkalies, etc. encountered in this area. Cork tile, likewise, is not a satisfactory floor for kitchens. It is harder to maintain and is more or less porous within the composition.

From the kitchen we move to the bathroom and here we find rubber tile pre-eminently desirable. It furnishes those desirable colors and values which fit in well with the decorative schemes of bathrooms. Linoleum is quite satisfactory in this area, as well as vinyl asbestos and vinyl sheeted material. Cork tile makes a splendid floor for bathrooms because of its resistance to heat flow. It is a warmer floor than other types because of this quality. Asphalt tile is undesirable because it has a high coefficient of heat flow and is cold in contact with the body.



In the living room any of the floors which have been discussed are suitable, except asphalt tile. Asphalt tile is a thermo-plastic and, as such, does not support standing furniture left in one position over a long period of time which is common practice in living rooms. Tables, pianos, desks, heavy divans, chairs, etc. leave unsightly residual indentations in asphalt tile. It is not indicated that other types of floors do not indent under similar static loads but the other floors have a certain amount of resiliency so that when the load is removed recovery occurs and indentations disappear.

In the bedroom the same objection to asphalt tile is natural because of heavy beds, dressers, chifforobes, dressing tables, etc. All of the other floors are good. Cork carpet is especially good, again because it is warm under foot contact. It should be noted here that in a recent investigation on the part of McCall's Magazine, a contest, "My Bedroom" indicated that the home owners of America were planning to use the smooth surface type of floor covering in bedrooms to the extent of 27% - over one-quarter. It is especially true that linoleum in sheet form makes an ideal floor for the child's bedroom because it carries a certain germidical property in its linoxyn content which is resistant to common disease germs, and it may be kept immaculate and free of small objects which might be picked up by the child.

Let's now go downstairs into the basement and find out what floor should be used there. Here the first recommendation is asphalt tile, for in contact with concrete below-grade in basements the thermo-plasticity of asphalt tile is not as serious a factor, because it is much cooler even in the hot summer months and therefore indentations are not bad under similar loads. Likewise in the average basement area the number of heavy pieces of furniture is not as great and accordingly the ill-effect of indentation is reduced to a minimum.

In the basement, in addition to asphalt tile, vinyl asbestos tile, recently added to this group of products, is ideal. It is in fact much more successful than asphalt tile in those areas where cloths washing and drying operations are carried out such as in the utility room. It is resistant to oils and soaps which can be present where these machine operations are carried on, with great quantities of soap getting onto the floor during the work.

And now, out of the cellar, let's go to a problem which is newer with us in home construction than any other in 40% of the homes built in the United States today which are not provided with excavated areas as cellars and do not carry crawl spaces for ventilation beneath the floor but have concrete slabs on-grade and not below-grade. This type of home breaks into two groups, those which are the more numerous, not using radiant heat, and those which do use radiant heat in the form of coils or pipes embedded in the concrete slab. Let's consider the first group. Here there are four types of floors which may be used successfully: Ranch Tile, a product available today consisting of a linoleum composition affording all the desirable properties of conventional linoleum, incorporating a special type of



manufacturer's adhesive. Then, of course, vinyl asbestos, the recently developed floor in the asphalt tile industry, asphalt tile and, most recently, rubber tile with a special chemical-set type of adhesive. The latter type of installation is costly because the special adhesive alone will run anywhere from 9¢ to 12¢ per square foot. Asphalt Tile has been proven as the least desirable for two main reasons: first, these on-grade homes of the ranch type naturally have a kitchen area where, as pointed out earlier, asphalt tile fails miserably due to its solvency in grease and oil, and then in the other areas of the home the bad effect of loads which cause bad indentations on this type of floor.

In the radiant heated job, asphalt tile manufacturers permit the installation of their product but do so without offering the usual guarantee and with quite firm restrictions on how high temperatures may get in the concrete slab if success is to be expected. Radiant heated floors can, under normal heating requirements in mid-winter in cold areas of the country get pretty hot, in fact thermo-couples introduced under resilient floors in this type of installation have been known to go as high as 117 degrees F. in early morning, cold wintry weather where it is necessary to raise the temperatures of the house to a livable degree. There is one type of floor in which the manufacturer offers a guarantee, namely, the same RanchTile mentioned earlier for the non-radiant heated on-grade areas. This floor carries a guarantee, even where radiant heat pipes are involved although, of course, the maximum working temperature in any slab must be part of any specification.

Now let us turn to some of the principal problems of installation. First of all, there is no smooth surface floor covering which can be successful over a poor underfloor, so the preparation of the underfloor before installation is important. Double wood underfloors are necessary if best results are to be obtained. The top board should be tongue and groove, not wider on the face than 3-13/16". If greater width boards are involved, plywood should be used, installed in accordance with the manufacturer's specifications.

The question of should felt be used is one that always comes up in connection with the installation of these various types of floors. On concrete felt should never be used. Please remember this. It only aggravates any condition which might work in the way of indentation and increases the problem of moisture introduced in double-adhesive procedure. Felt is necessary except on the patented back of the Duplex Felt type. Why is felt necessary? For one reason only. Please do not believe that felt in any way levels out inequalities of underfloors. It may conceal them for a short period of time after installation but eventually, under service the parallel surfaces of felt and the resilient floor conform to all the inequalities in the underfloor, and they show through, exactly the same as where felt is not used. The reason for felt is to act as a divorcing agent between the wood underfloor and the floor covering, inasmuch as wood in small increments shrinks in the wintertime and expands in the summertime during wet humid months. If felt is not introduced or if a product with a special patented Duplex Felt back is not used with sheet goods, cracks will occur in the



floor covering during the winter season when the shrinkage takes place. In the tile units open joints will result so that during washing operations moisture will get down between these cracks and, in addition to being unsightly, the adhesive will be dissolved and the tile will curl and crack, resulting in complete failure.

Another important point is to remember that yard goods should always be laid at right-angles to the direction of the top floorboards. This is necessary, even where felt is used, because when the boards shrink, open seams can result where the goods are laid parallel to the boards. If they are laid at right-angles, these open seams do not occur.

Cove base and border is a desirable type of installation for treatment at the vertical wall area. However, this is something which the average consumer should not attempt to do as a do-it-yourself or "U-Do-It" program.

And now for maintenance which I am sure will interest everyone. The popular way of maintaining all of the floors talked about today is the use of the lustrous-drying self-polishing type of emulsion wax. Solvent type waxes may be used if burnishing is to follow, with one exception. They should never be used on asphalt tile because, again, the solvents are usually of the type which will dissolve the ingredients of asphalt tile, resulting in softening and eventual failure.

There are three basic steps to good maintenance: first, when the floor is washed remove the dirt - don't just spread it around. Second, in order to remove all traces of soap and cleaner the floor should be rinsed with clear water and allowed to dry thoroughly. Third, the application of wax should be made in thin coats, each coat being allowed to dry thoroughly before additional coats are applied. If the wax is walked on or if additional coats are applied before drying takes place, the complete waxing operation will be a failure. This, of course, is not true with the least popular type or solvent-type waxes which may be burnished immediately upon application.

One of the members of the group has asked about the so-called hard finishes for resilient smooth surface floors, the lacquer-shellac-varnish group. Do not use them. They discolor with age in spite of manufacturers' claims and form paths in traffic lanes and at thresholds which are hard to remove. There is one exception. On cork tile, refinishing is accomplished through the use of hard finishes but this is not a maintenance material, because cork tile, after refinishing with the hard lacquer or varnish, should be maintained with wax, exactly the same as other types of floors.

How much maintenance is required on any specific floor depends upon many variables. Is the house located in an area where sand, gravel or grit may be carried in on the shoes? How many people are in the family? Is the area a passageway between a connected garage and a living room, and many other factors, what the room is used for, etc. The best prescription of how frequently maintenance should be carried on is, keep your floor clean and in good appearance, waxing and washing as frequently as necessary to do so.



Should worn-off areas be filled in on waxed floors? The answer is they may, but on the average kitchen floor the entire area should be rewashed and rewaxed. Of course, in bedrooms and dining rooms of ranch homes at traffic lanes it is wise to fill in, rather than to do the entire area.

The trend to the U-Do-It feature in floor and wall covering is increasing. Manufacturers furnish small tool kits available at \$1.25 to \$1.50 each, including the necessary tools for the work. Tile units make a much better U-Do-It product than sheet goods which are intended for professional installation for best results.

In the smooth surface wall covering field there are two types which I should like to discuss. In the enamel surface group there are many manufacturers who produce a product which is an off-shoot of Congowall, again a trade-name for the original in this field, a true reproduction of the  $4\frac{1}{2}$ " ceramic tile with a true, depressed tool mortar line, providing the true appearance of cement used in an actual tile installation. An enamel surface resistant to those fluids which commonly come in contact with it in bathroom and kitchen areas, it offers a splendid wall material in 54" wainscoting and 36" wide full wall and upper wall material at approximately 13¢ per square foot.

And then in the wall covering field there are many composition types, including linoleum, rubber, vinyl and plastic, the latter in the polystyrene type which the consumer may purchase in small units of 9"x9" or  $4\frac{1}{2}$ "x4", ranging in price from 25¢ to 50¢ per square foot for material only. In addition to these composition units there are metal tile with enamel and baked ceramic surfaces, ranging from 40¢ to 70¢ per square foot; and, of course lately the baked clay tile industries are recommending a special thin clay product for consumer installation with adhesives, rather than the cement mortar bed, at prices ranging from 55¢ to \$1.00 per square foot, depending upon the color of the product. Then, of course, there is tile board which is available in widths up to 42" in varying lengths where enamel and heat-baked surfaces are provided in the popular tile units at prices ranging from 35¢ to 50¢ per square foot.

On the question of installation of wall covering, the popular backings found in the average home of plaster or dry wall construction of gypsum wallboard, make ideal backings for all of these various products. Adhesives to be used are those recommended by the respective manufacturers and permit of easy installation by the consumer under the U-Do-It program. Tools necessary are those which are made available in the kits by the respective manufacturers at very nominal prices of \$1.25 to \$1.50 per kit.

#### Discussion:

Q. How much water is needed to clean the floor?

A. As little as possible.

Q. What about cork tile with radiant heat?

A. It would work but the temperature would go up 15 degrees.



Q. How do you care for cork?

A. It can be waxed but when worn it should be given a coat of varnish.

Q. What about vinyl?

A. There has not been as much experimenting and information about vinyl as linoleum. Vinyl will out last any other floor in wearing 2 to 1 if you have the same thickness.



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